What is claimed is:

1.   A method for enabling recovery of data stored in a
computer network, the computer network comprises a
5   plurality of computer nodes, the method comprising the
steps of

    generating a set of redundancy data based on a
predetermined relationship between a first set of data and
10   a second set of data;

    injecting the first set of data, the second set of
data and the set of redundancy data into separate looping
paths of the computer network,
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    wherein a looping path is a path along a plurality of
computer nodes in which data is transported, and the
looping paths are defined in separate communication
channels between the computer nodes and pass through at
20   least one common node of the computer network, such that
the redundancy data and the second set of data can be used
to reconstruct the first set of data based on the
predetermined relationship between the first and second set
of data when the first set of data is lost, thereby
25   enabling the recovery of data stored in the computer
network.

2.   The method for enabling recovery of data stored in a
computer network according to claim 1, wherein the set of
30   redundancy data is generated using a Forward Error
Correction technique.

3. The method for enabling recovery of data stored in a computer network according to claim 2, wherein the set of redundancy data is generated based on an Exclusive-OR relationship between the first set of data and the second
5 set of data.

4. The method for enabling recovery of data stored in a computer network according to claim 1, further comprising the step of adding an identity field having a predefined
10 value to each of the first set of data, the second set of data and the set of redundancy data, wherein the predefined value of the identity field of the first set of data, the second set of data and the set of redundancy data corresponds with one another.
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5. The method for enabling recovery of data stored in a computer network according to claim 4, further comprising the steps for storing a new first set of data:

20   receiving the new first set of data to be stored in the computer network;

        adding an identity field having a predefined value to the new first set of data, wherein the predefined value of
25 the new first set of data is the same as the predefined value of the identity field of the first set of data;

        reading the second set of data from the respective looping path of the computer network, wherein the
30 predefined value of the identity field of the second set of data corresponds to the predefined value of the identify field of the first set of data;

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generating a new set of redundancy data based on a predetermined relationship between the new first set of data and the second set of data,

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injecting the new first set of data together with its corresponding identity field into the looping path of the first set of data, wherein the new first set of data replaces the first set of data, and

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injecting the new set of redundancy data into the looping path of the set of redundancy data, wherein the new set of redundancy data replaces the set of redundancy data which has the predefined value of the identity field

15 corresponding with the predefined value of the identity field of the first set of data.

6.   The method for enabling recovery of data stored in a computer network according to claim 4, wherein the

20 predefined values of the identity field of the first set of data, the second set of data and the set of redundancy data are set to the same value.

7.   The method for enabling recovery of data stored in a

25 computer network according to claim 1, further comprising the steps of

fragmenting a payload of a data packet to be stored in the computer network into at least a first sub-packet and a

30 second sub-packet; and

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adding a data packet header of the data packet to both the first sub-packet and the second sub-packet to form the .first set of data and the second set of data, respectively.

5   8.   The method for enabling recovery of data stored in a computer network according to claim 7, further comprising the step of adding an identity field having a predefined value to each of the first sub-packet, the second sub-packet and the set of redundancy data, wherein the

10   predefined value of the identity field of the first set of data, the second set of data and the set of redundancy data correspond with one another.

9.   A method for recovering data stored in a computer

15   network, the computer network comprises a plurality of nodes, the method comprising the steps of

reconstructing a first set of data from a second set of data and a set of redundancy data stored in separate

20   looping paths of the computer network when the first set of data is lost, wherein the set of redundancy data is generated based on a predetermined relationship between the first set of data and the second set of data, and

25   injecting the reconstructed first set of data into the looping path of the first set of data to be stored therein, thereby recovering the first set of data stored in the computer network.

30   10.   The method for recovering data in a computer network according to claim 9, wherein the set of redundancy data is

generated based on an Exclusive-OR relationship between the first set of data and the second set of data.

11. The method for recovering data in a computer network according to claim 10, wherein the first set of data is reconstructed based on an Exclusive-OR relationship between the second set of data and the set of redundancy data.

12. The method for recovering data in a computer network according to claim 9, further comprising the step of

reading the second set of data and the set of redundancy data from the respective looping paths of the computer network,

wherein the second set of data and the set of redundancy data each have an identity field having a value which corresponds to a predefined value of an identity field of the first set of data.

13. The method for recovering data in a computer network according to claim 9, further comprising the step of

reading the second set of data and the set of redundancy data from the respective looping paths of the computer network,

wherein the first set of data, the second set of data and the set of redundancy data have identical data packet headers,

wherein the second set of data and the set of redundancy data each have an identity field having a value

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which corresponds to a predefined value of an identity field of the first set of data.

14. A data recovery system for data stored in a computer
5   network, the computer network comprises a plurality of computer nodes, the data recovery system comprises:

   a processing unit at at least one node for generating a set of redundancy data based on a predetermined
10   relationship between a first set of data and a second set of data;

   a read and write unit for injecting the first set of data, the second set of data and the set of redundancy data
15   into separate looping paths of the computer network,

   wherein a looping path is a path along a plurality of computer nodes in which data is transported, and the looping paths are defined in separate communication
20   channels between the computer nodes and pass through at least one common node of the computer network.

15. The data recovery system for data stored in a computer network according to claim 14, wherein the communication
25   channels connecting the computer nodes are optical fiber cables.

16. The data recovery system for data stored in a computer network according to claim 15, the system further comprises
30   at least an optical switch for switching a pair of optical fiber cables.

17. The data recovery system for data stored in a computer network according to claim 16, wherein the system comprises at least three pairs of optical fibers connecting the nodes of the computer network.

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18. A data recovery system for data stored in a computer network, the computer network comprises a plurality of computer nodes, the data recovery system comprises:

10   a processing unit at at least one node for reconstructing a first set of data from a second set of data and a set of redundancy data stored in separate looping paths of the computer network when the first set of data is lost, wherein the set of redundancy data is

15   generated based on a predetermined relationship between the first set of data and the second set of data, and

        a read and write unit for injecting the reconstructed first set of data into the looping path of the first set of

20   data to be stored therein to recover the first set of data stored in the computer network,

        wherein a looping path is a path along a plurality of computer nodes in which data is transported, and the

25   looping paths are defined in separate communication channels between the computer nodes and pass through at least one common node of the computer network.

19. The data recovery system for data stored in a computer

30   network according to claim 18, wherein the communication channels between the computer nodes are optical fiber cables.

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20. The data recovery system for data stored in a computer
network according to claim 19, the system further comprises
at least an optical switch for switching a pair of optical
5   fiber cables.

21. The data recovery system for data stored in a computer
network according to claim 20, wherein the system comprises
at least three pairs of optical fibers connecting the nodes
10   of the computer network.